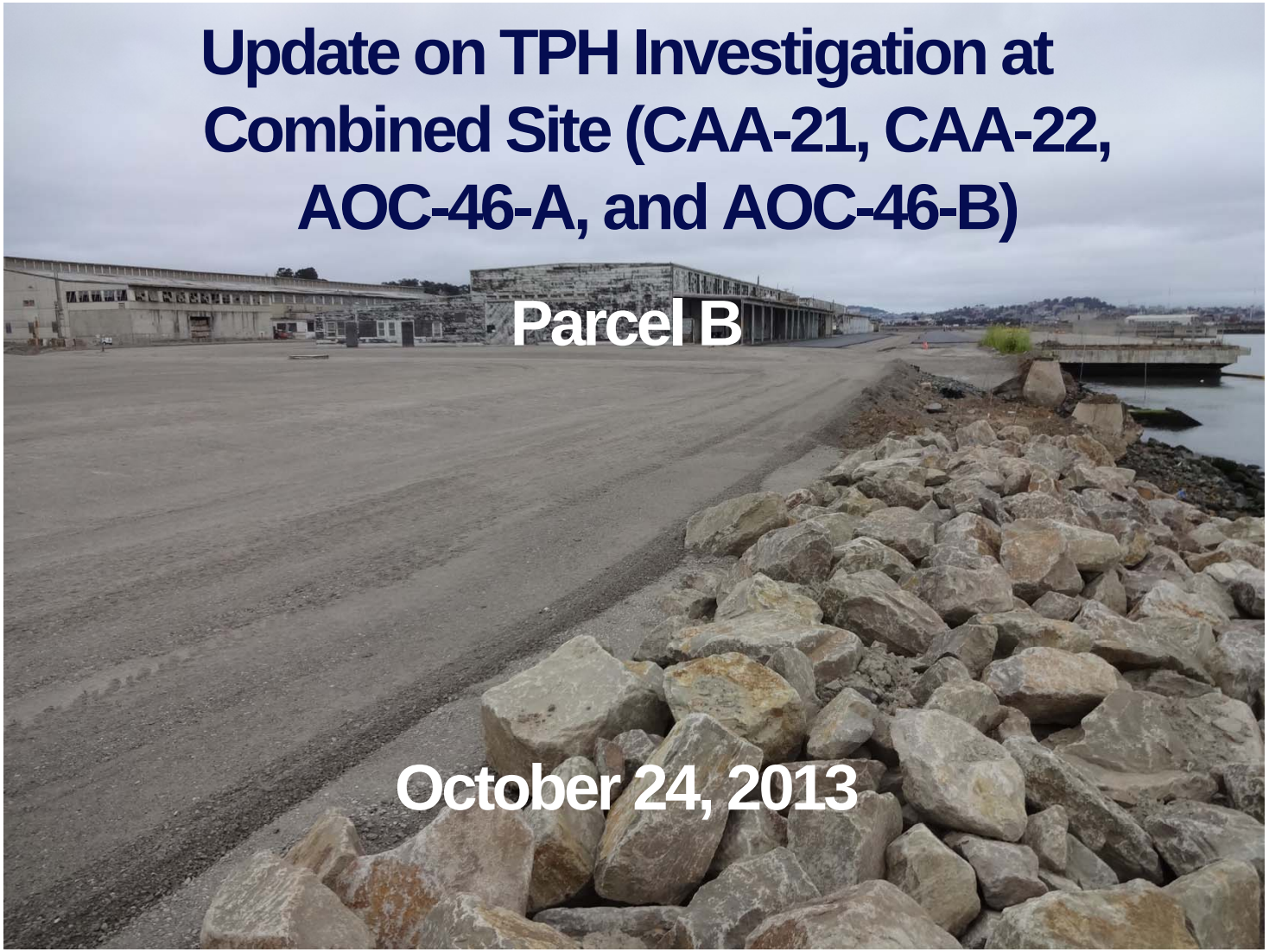
Update on TPH Investigation at Combined Site (CAA-21, CAA-22, AOC-46-A, and AOC-46-B)



Parcel B

October 24, 2013

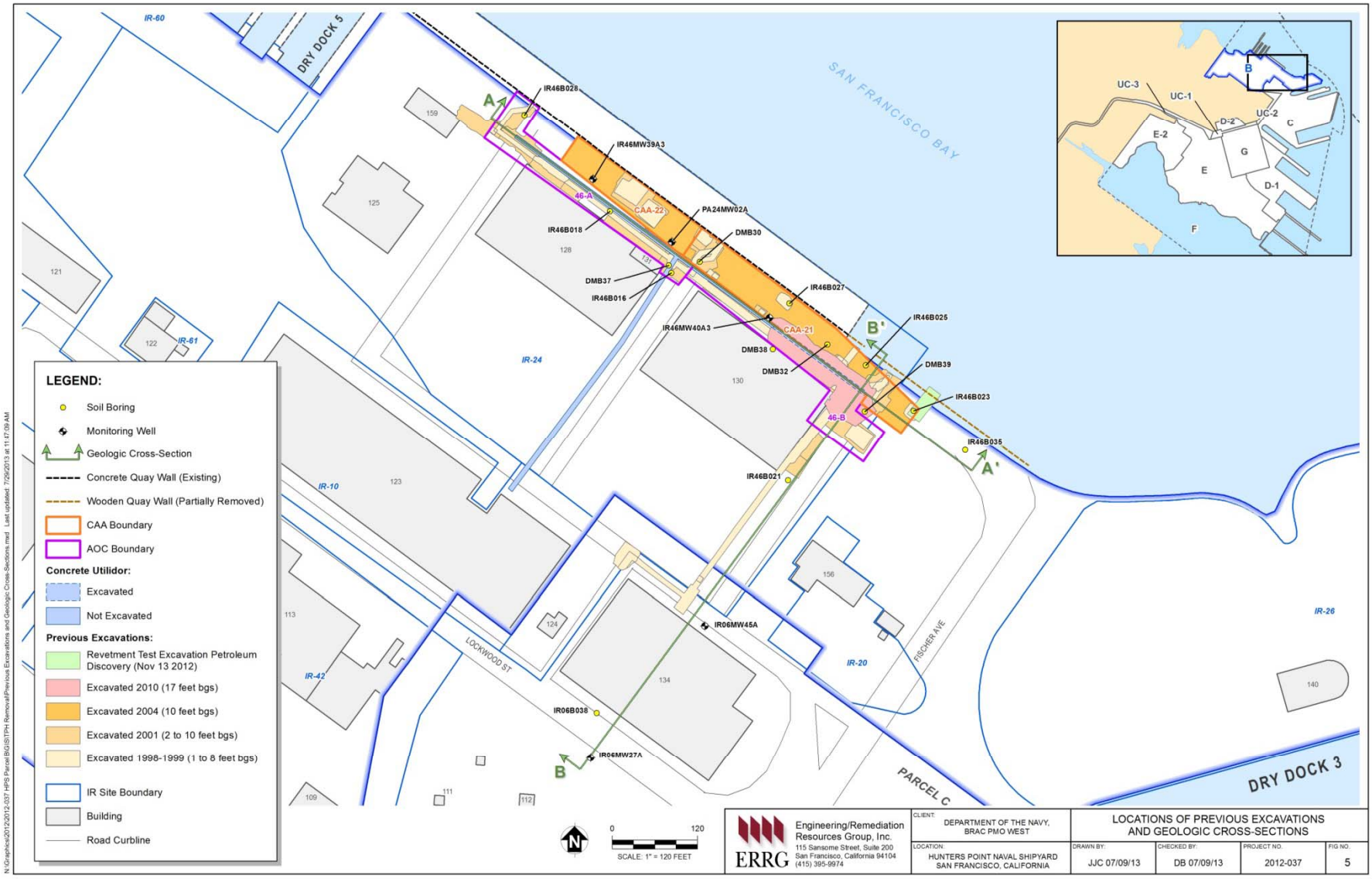
Presentation Outline

- Combined Site Overview (History and Location)
- Data Gaps Investigation Development
- Proposed Data Gaps Investigation
- Work Plan Update
- Schedule Update

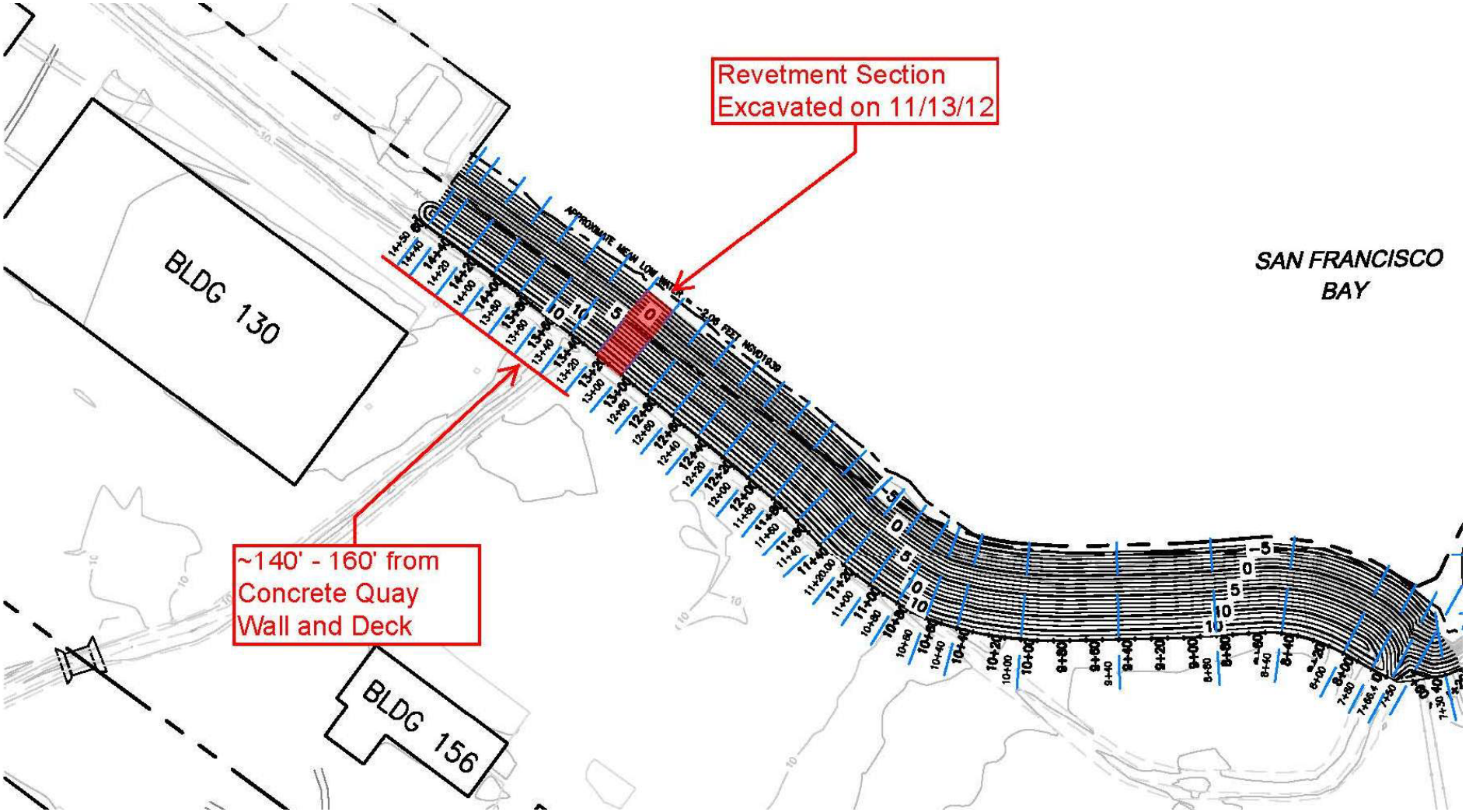
Combined Site History

- The Combined Site (CAA-21, CAA-22, AOC 46-A and AOC 46-B) encompasses an area impacted by releases from a former fuel line, and is one of the sites addressed in the Parcel B Corrective Action Plan (ITSI 2009).
- Previous cleanup (1998-2010) included removal of fuel lines and shallow soil (< 10 feet bgs) throughout most of the area, with select areas to 17 feet bgs.
- The November 2012 discovery of NAPL in the intertidal zone along the Parcel B shoreline during remedial action revetment construction changed the interpretation of site conditions.
- The presence of visible TPH contamination in the intertidal zone prompted the need for further delineation of TPH impacts within the Combined Site (and the adjoining intertidal zone).
- These data will help refine the CSM and aid in the selection of a corrective action that will allow for completion of the Parcel B revetment structure.

Combined Site Location



Location of NAPL Discovery in November 2012



Process for Developing the Proposed Data Gaps Investigation

An extensive review of historical information was conducted in the process of developing the work plan for the Combined Site:

- Site history was reviewed to identify site activities and features that may have resulted in petroleum releases
- Locations and elevations of all key subsurface site features were identified and mapped (e.g. ground surface, former fuel lines, utility corridors, the concrete and wooden quay walls)
- Historical boring logs were reviewed and incorporated into cross-sections
- Historical hydrogeologic information was reviewed to determine groundwater elevations, flow directions, gradients, and tidal influence
- Historical TPH and PAH data were compiled and mapped to allow for evaluation of the nature and extent of contamination, and to identify data gaps *(results summarized on Slide 7)*
- Information was used to identify potential contaminant migration pathways to the San Francisco Bay *(discussed further on Slide 8)*

Summary of Historical Data

- Diesel-range TPH is the predominant chemical group.
  - Numerous exceedances for diesel-range TPH within Combined Site
  - Localized exceedances for gasoline-range TPH within Combined Site
  - No exceedances for motor oil-range TPH or BTEX/MTBE within Combined Site
- The most laterally extensive TPH contamination is present from 10 to 14 feet bgs.
- The deepest TPH contamination (at 25 feet bgs) is present in a localized area (IR24MW28A) near the end of the concrete quay wall.
- TPH contamination may also be present in unexcavated soil under the remaining utilidors.
- Various PAHs (most notably benzo[a]pyrene) are found in localized portions of the Combined Site, but are present at relatively low concentrations (< 1 mg/kg).

Potential Migration Pathways

- Permeable fill near the shoreline may be a preferential pathway for TPH contamination to the Bay.
- The concrete quay wall likely limits discharge of TPH contamination throughout most of the Combined Site, but potential discharge could occur during low tides either through or under the wall.
- The wooden quay wall is very degraded and is not likely an effective vertical barrier to contaminant discharge.
- The discovery of LNAPL in the intertidal zone during revetment construction (in November 2012) indicates a potential contaminant source requiring further delineation.

Proposed Data Gaps Investigation

The data gaps investigation includes the following tasks:

- Task 1: Refine the extent of remaining TPH/PAH contamination in soil within the Combined Site

- Task 2: Evaluate potential TPH migration from the Combined Site to San Francisco Bay

The sampling designs For Tasks 1 and 2 are described on the next two slides.

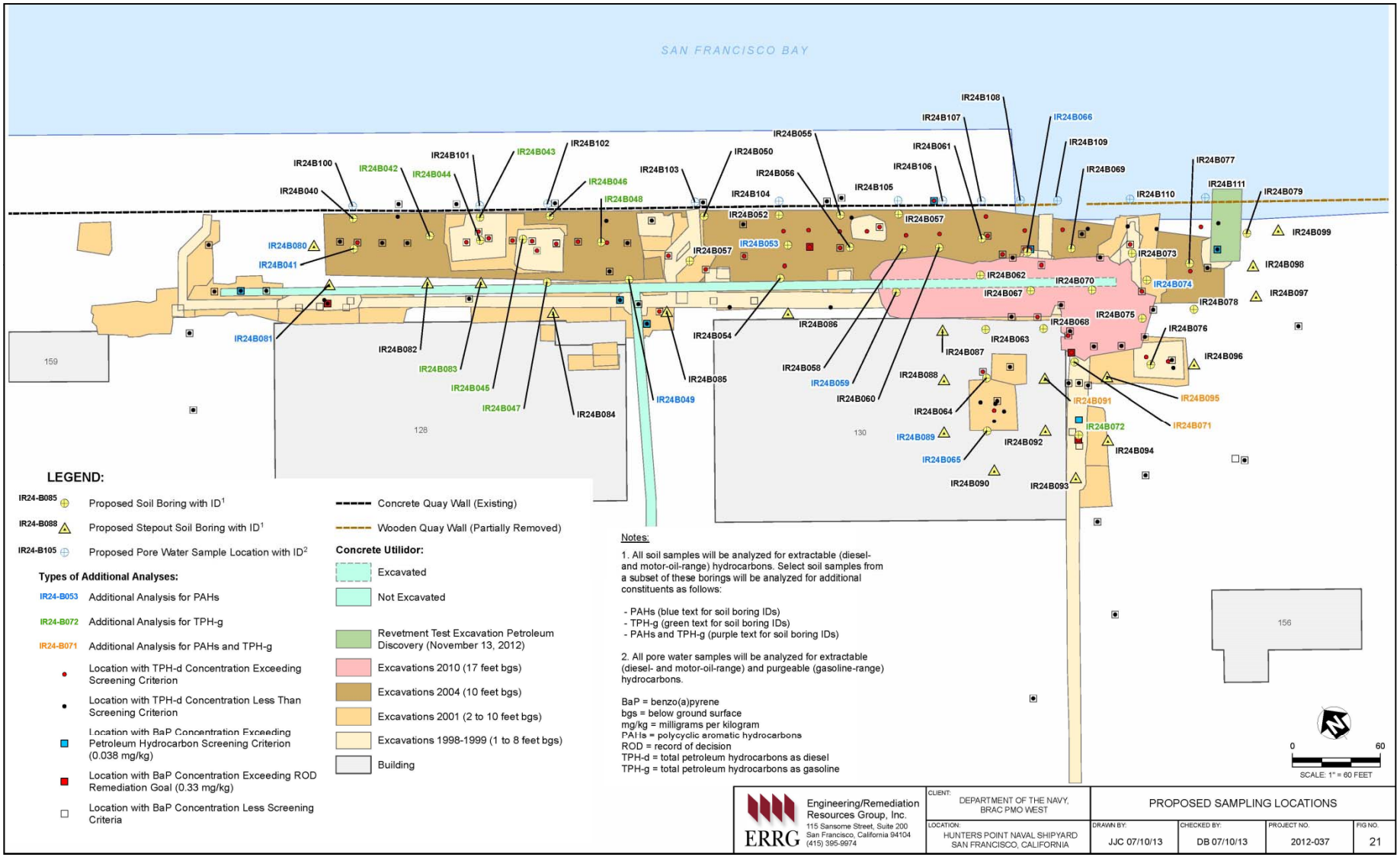
Task 1 Sampling Design

- Primary goal – improve the horizontal and vertical delineation of TPH-d (the most predominant chemical group)
  - A subset of samples will be analyzed for PAHs and TPH-g to fill data gaps
  - no BTEX/MTBE analyses are proposed (no exceedances)
- 40 borings are proposed
  - 20 step-out borings are proposed as a contingency action (to be implemented if results from initial 40 borings do not provide adequate horizontal delineation)
- Horizontal locations of samples are primarily based on:
  - Need to improve data density in certain areas (e.g., adjacent to quay wall)
  - Proximity to potential sources of remaining contamination (e.g., existing utilidors)
- Vertical depths of samples are primarily based on:
  - First sample being collected 3 feet below last TPH-d exceedance (e.g., 13 feet bgs for a location where TPH-d exceedance was found at 10 feet bgs)
  - 2 additional samples being collected at 5 foot increments (e.g., 18 and 23 feet bgs for a location where the first new sample was collected at 13 feet bgs)

Task 2 Sampling Design

- Primary goal – characterize TPH concentrations in pore water in order to evaluate TPH migration to SF Bay
- 12 locations will be drilled bayward of the quay wall
  - Water samples will be collected via Hydropunch and analyzed for TPH-(extractable) to allow for evaluation of TPH-d in pore water
- Locations will be spaced about 50 feet apart
- Borings beneath the quay deck will extend through quay deck, void space between deck and water surface, riprap at shoreline slope, and a short distance (about 1 foot) into the sediment

DGI Sampling Locations (*see handout*)



Schedule Update

Work Plan Strategy Mtg with WB & SFDPH	July 31, 2013
Submit Draft Work Plan	Oct 8, 2013
Draft Work Plan Comments Due	Nov 7, 2013
Submit Final Work Plan	Nov 21, 2013
Field Work	Nov 19 - Dec 5, 2013
Meeting to Discuss Results	early Jan 2014
Submit Draft Tech Memo	Feb 12, 2014
Draft Tech Memo Comments Due	Feb 26, 2014
Submit Final Tech Memo	Mar 17, 2014

Note: the tech memo will include summary of the investigations results, delineation of contamination, updated CSM, evaluation of closure alternatives, recommended approach to Combined Site closure

Next Steps after Combined Site DGI

- Navy will award a new contract to develop and implement corrective action recommended in Tech Memo (Summer 2014)
  - Work Plan
  - Corrective Action Field Work
  - TPH Site Closure Report
- Complete Parcel B remedial action (2015)
  - Construct remaining 230 feet shoreline revetment
  - Issue Parcel B Remedial Action Closure Report